2010-12-07 Tuesday Morning Notes

Tuesday, December 07, 2010
7:11 AM

Stacking and Transfers

- Stacked 25mA/hr with a production of 20.4 pbars/Mp with 7.89 Tp on target
- Unstacked 520E10 in 61 transfers over 19 sets with an average efficiency of 94.9%.

Interesting Happenings

- Accumulator vertical emittance steps down and then up twice.
- Ap2 BPMs
  - Around 18:00 ops noted that the overthruster walked the AP2 line to a bad place. (http://www-bd.fnal.gov/cgi-mcr/elog.pl?nb=2010&action=view&page=920&anchor=180707&hilite=18:07:07)
  - AP2 BPMs had started showing zero values around 13:00
  - Fix
    - Reboot AP2 BPM crate at F27
    - Reload BPMs via http://www-bd.fnal.gov/ws/wjadocs/ap2bpm/
  - Dave P. noticed that the dt since trig" parameters D:BP50WT and D:BP27WT were very different. BP50WT was reporting values that one would expect for a random sample of up to 2.2 (or so) seconds. BP27WT never reported anything larger than about 0.4 seconds and was mostly around 0.1 seconds. After the power cycle the two parameters are reporting roughly the same value for each update. It looks like the F27 BPMs got into a mode where they were triggering too often and reporting zero values since there was no beam at at many of the sample times.
- E760 logger stopped logging at about 12:00 on December 6th.
- Timer gating for the **Stacktail Pin Switch, A:SPPS01**, is now available by setting the On event and time using A:SPP11 and the Off event and time using A:SPP21.
  - DVM removed the OFF and ON commands in the various ACL scripts for A:SPPS01 and set up all the timers, delays, etc so the gating works for reverse proton and Pbar extraction one-shots. I have kept the OFF / ON commands for the medium level amplifier A:SPAM09. If PBCOOL freaks out again, the PIN switch will still go off normally and we will still extract without any problem. We now have a redundant way of turning off the stacktail through a different frontend.
  - DVM ran into a rather strange problem with the gating. If we reference both the stacktail gates A:SPP11 & A:SPP21 to $90 events with the appropriate delays, the gates work perfectly when stacking. However, when we tried gating off during reverse protons and extractions, the gating did not work. DVM traced this to there being more than one clock event in the 377 channel. When going to just $93 / $99's for reverse protons and only $91 / $94's for extractions, everything starting working correctly. 377 problem?
  - DVM changed the gate times for reverse protons and extractions to better fit the gate windows to the cycle. We were actually turning off the stacktail over 1 second before the reverse proton beam arrived and turning it back on before the protons were kicked out, so I suspect we could stop gating off the stacktail during the reverse proton tuneup. I'll look into this some other time.
- The primary controls DNS server was changed out yesterday at noon. It didn't work, causing some unexpected controls problems.

Numbers

- Stacking

- Pbars stacked: 71.90 E10
- Time stacking: 23.79 Hr
- Average stacking rate: 03.02 E10/Hr

- Uptime
  - Number of pulses while in stacking mode: 0
  - Number of pulses with beam: 0
  - Fraction of up pulses was: ?%

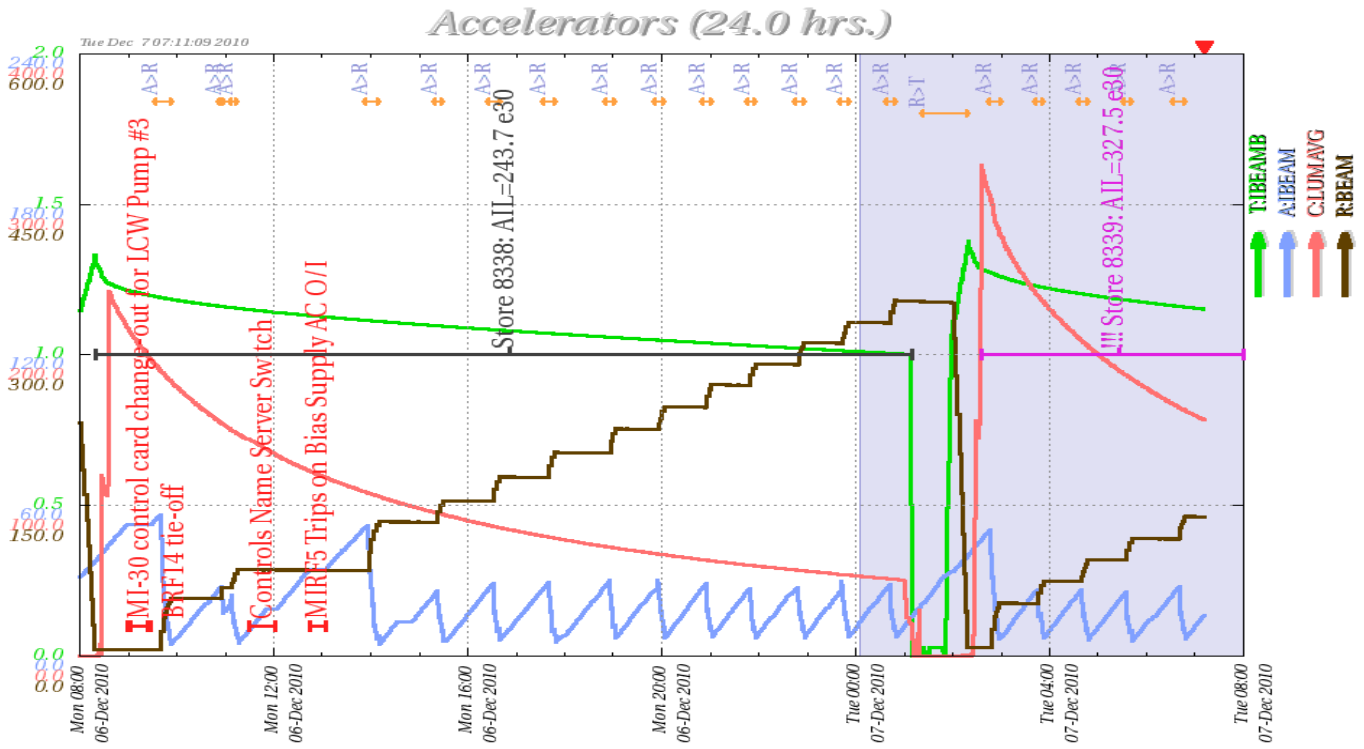
- The uptime's effect on the stacking numbers
  - Corrected time stacking: ?Hr
  - Possible average stacking rate: 00.00 E10/Hr
  - Could have stacked: ?E10/Hr

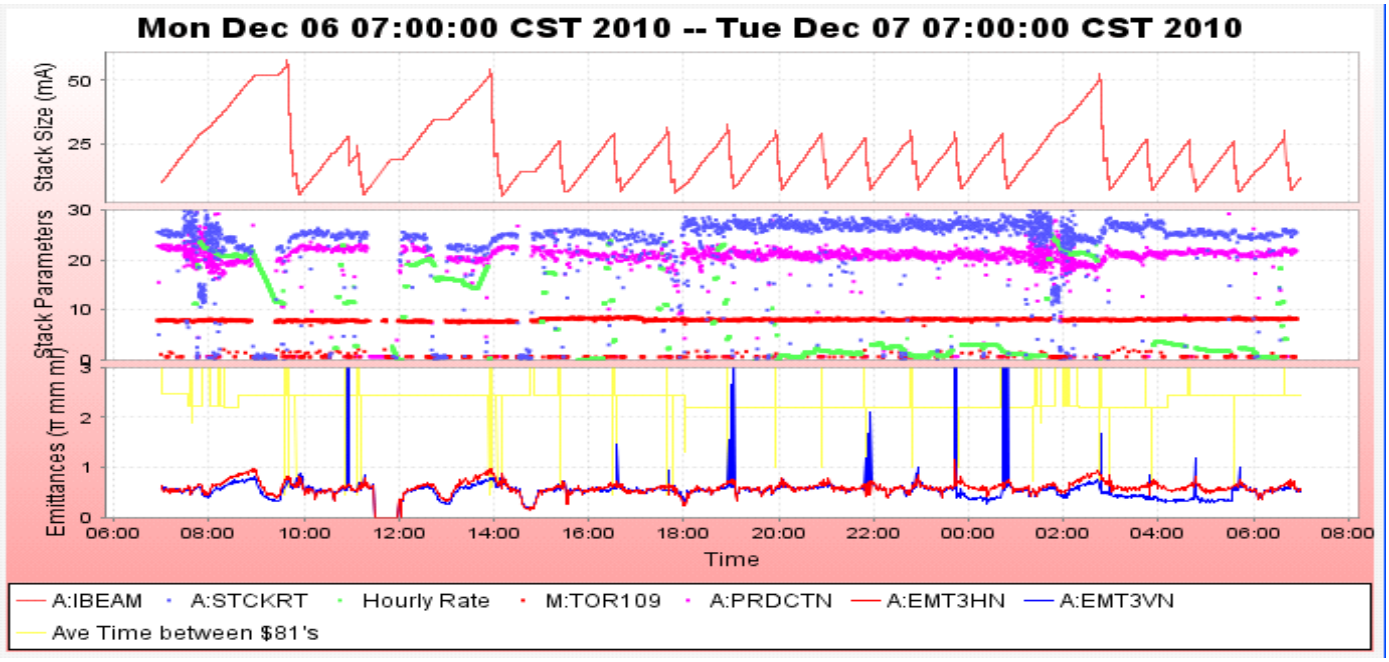
- Recycler Transfers
  - Pbars sent to the Recycler: 86.28 E10
  - Number of transfers : 60
  - Number of transfer sets: 0
  - Average Number of transfer per set: 0.00
  - Time taken to shoot including reverse proton tuneup: 00.21 Hr
  - Transfer efficiency: 93.62%

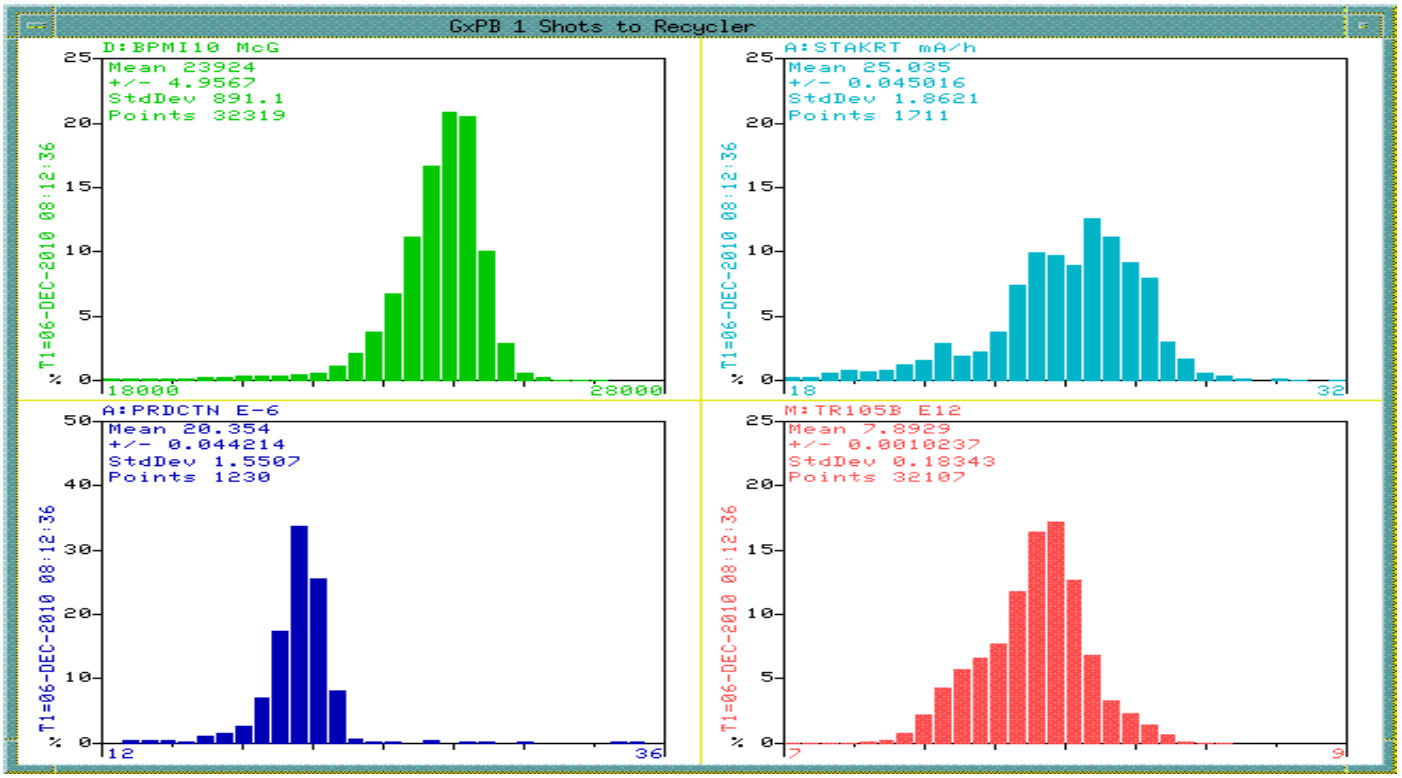
- Other Info
  - Average POT : ?E12
  - Average production: 0.00 pbars/E6 protons

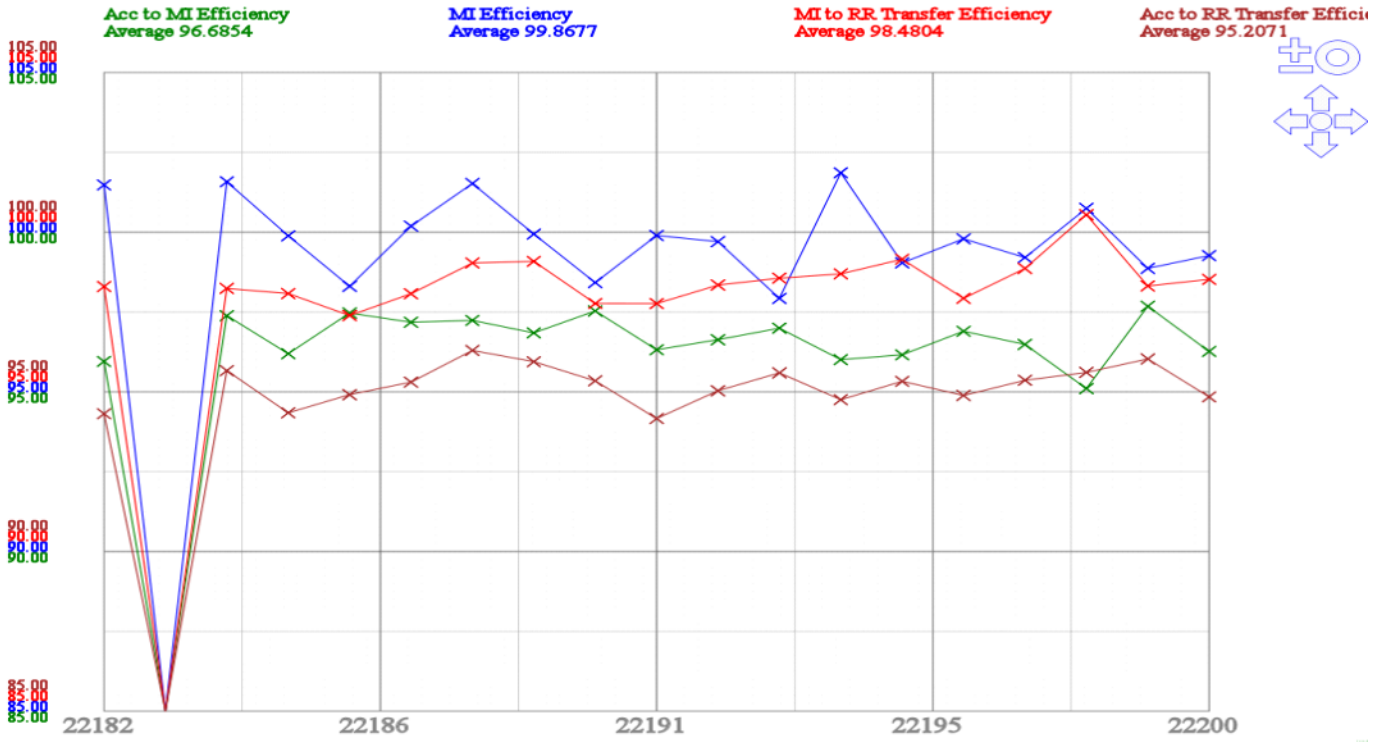
- * Red indicates a problem during data retrieval. See the message window for details.

Plots

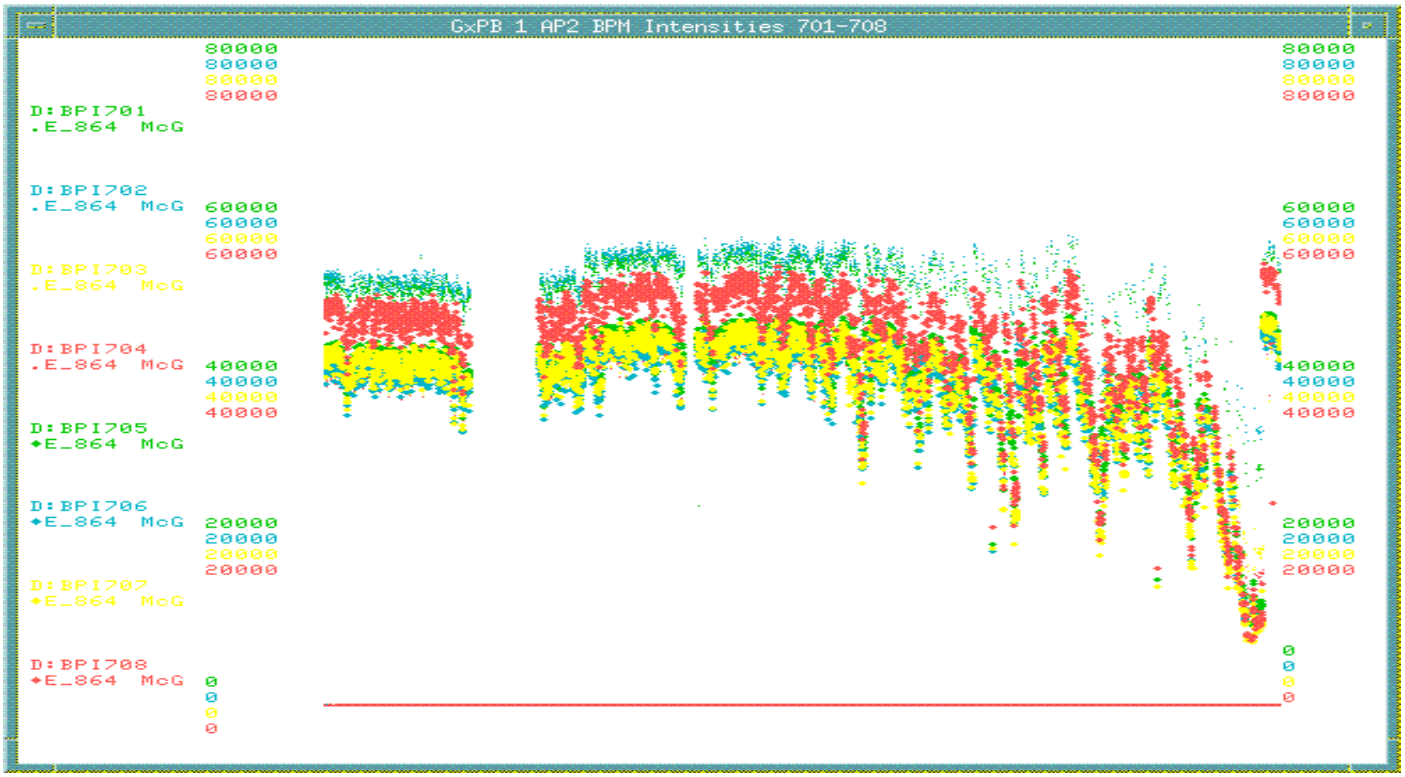



Mon Dec 06 07:00:00 CST 2010 -- Tue Dec 07 07:00:00 CST 2010
Stack Size (mA)
Stack Parameters
Emittances (π mm mr)
Time
A:IBEAM
A:STCKRT
Hourly Rate
M:TOR109
A:PRDCTN
A:EMT3HN
A:EMT3VN
Ave Time between $81's

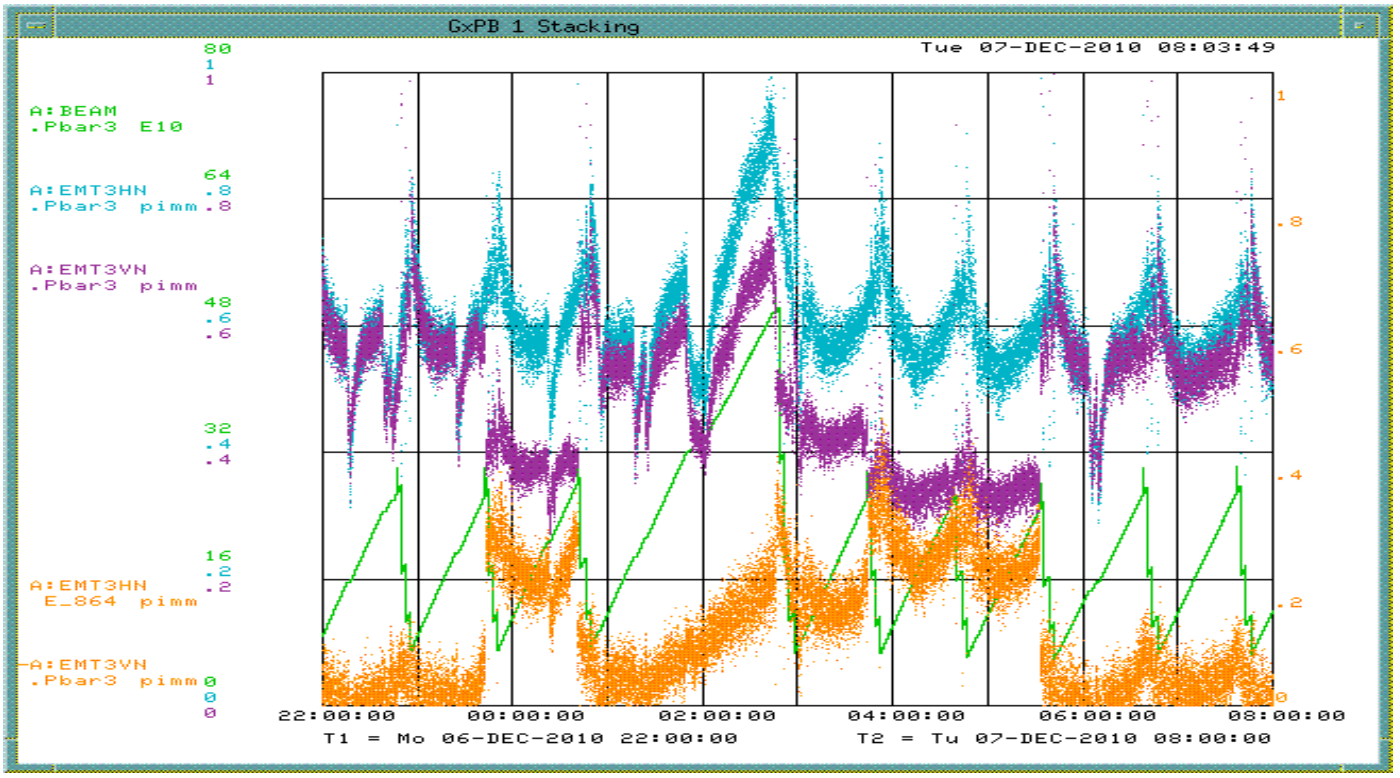

GxPB 1 Shots to Recycler
D:BPMI10 McG
Mean 23924
+/- 4.9567
StdDev 891.1
Points 32319
A:STAKRT mA/h
Mean 25.035
+/- 0.045016
StdDev 1.8621
Points 1711
A:PRDCTN E-6
Mean 20.354
+/- 0.044214
StdDev 1.5507
Points 1230
M:TR105B E12
Mean 7.8929
+/- 0.0010237
StdDev 0.18343
Points 32107



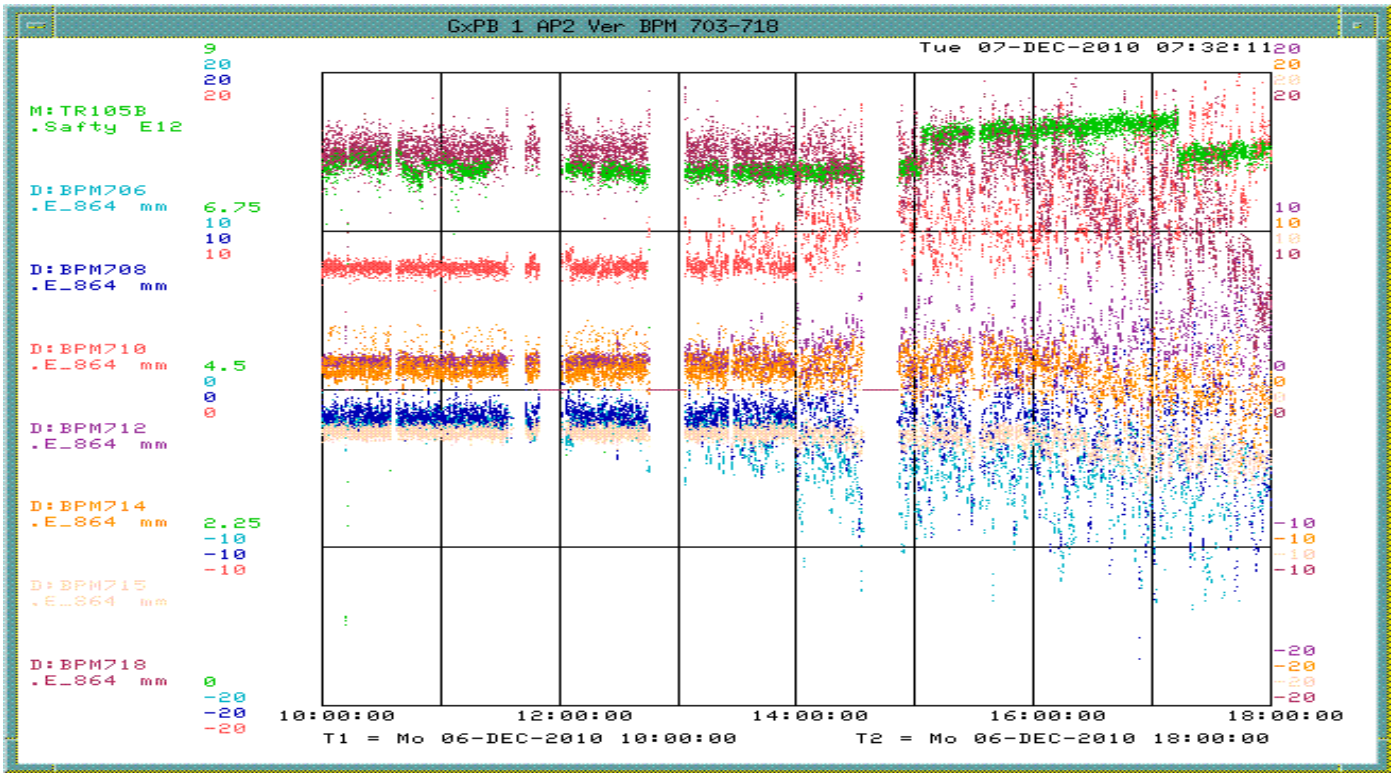
Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Acc to MI " Acc to MI2 Efficiency	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				519.57			493.16	94.92%	96.61%	96.57%	93.29%	61	19	6.0949	5.1216	1.9169
	Daily Average =>				519.57			493.16					61	19			
22200	Tuesday, December 07, 2010	6:40	27.60	6.39	23.77	116.72	139.10	22.60	95.07%	96.41%	96.15%	92.70%	3	1	5.969	5.287	1.911
22199	Tuesday, December 07, 2010	5:35	25.73	5.93	22.38	95.72	117.01	21.49	96.02%	97.69%	96.73%	94.50%	3	1	5.923	5.481	1.938
22198	Tuesday, December 07, 2010	4:40	26.65	6.20	23.01	74.20	95.98	22.00	95.59%	95.34%	95.45%	91.00%	3	1	5.843	3.482	1.919
22197	Tuesday, December 07, 2010	3:45	26.90	6.59	22.96	52.64	74.35	21.88	95.30%	96.96%	96.41%	93.48%	3	1	6.229	3.406	1.933
22196	Tuesday, December 07, 2010	2:47	50.29	6.61	47.23	8.47	52.85	44.75	94.75%	96.80%	97.07%	93.96%	4	1	6.755	4.587	1.859
22195	Tuesday, December 07, 2010	0:42	28.80	7.14	24.10	331.88	354.45	22.97	95.30%	96.52%	95.58%	92.25%	3	1	6.163	5.4	1.953
22194	Monday, December 06, 2010	23:44	27.32	7.04	22.77	311.72	332.98	21.56	94.66%	96.10%	98.32%	94.48%	3	1	6.286	3.62	1.956
22193	Monday, December 06, 2010	22:49	27.86	6.95	23.40	290.42	312.59	22.42	95.79%	96.92%	95.51%	92.57%	3	1	5.991	5.351	1.945
22192	Monday, December 06, 2010	21:49	27.33	6.94	22.87	269.91	291.27	21.65	94.64%	96.55%	96.39%	93.06%	3	1	6.252	5.623	1.962
22191	Monday, December 06, 2010	20:55	29.11	7.11	24.34	247.88	270.54	22.96	94.32%	96.57%	96.55%	93.24%	3	1	6.309	5.566	1.934
22190	Monday, December 06, 2010	19:57	28.29	6.82	23.82	226.09	248.44	22.71	95.35%	97.25%	95.98%	93.33%	3	1	5.841	5.27	1.924
22189	Monday, December 06, 2010	18:56	30.46	7.44	25.41	202.62	226.59	24.31	95.65%	97.10%	97.15%	94.34%	3	1	6.321	5.67	1.936
22188	Monday, December 06, 2010	17:40	29.43	5.33	26.15	178.26	203.11	25.13	96.11%	96.99%	98.18%	95.23%	3	1	5.448	4.935	1.886
22187	Monday, December 06, 2010	16:32	29.13	6.23	25.31	154.61	178.65	24.17	95.47%	97.41%	97.14%	94.62%	3	1	6.051	5.457	1.897
22186	Monday, December 06, 2010	15:22	26.03	5.84	22.72	133.59	154.95	21.54	94.78%	97.13%	95.94%	93.19%	3	1	5.648	5.488	1.921
22185	Monday, December 06, 2010	13:57	52.75	4.53	53.02	85.45	134.04	49.73	93.79%	96.18%	95.94%	92.27%	5	1	6.968	6.21	1.872
22184	Monday, December 06, 2010	11:08	21.45	4.97	18.96	68.01	86.05	18.15	95.71%	97.58%	98.67%	96.28%	3	1	5.611	5.217	1.943
22183	Monday, December 06, 2010	10:55	27.95	17.71	11.53	57.28	68.14	10.95	94.97%	93.95%	93.61%	87.95%	2	1	5.99	5.382	1.876
22182	Monday, December 06, 2010	9:39	56.22	4.71	55.81	6.09	57.67	52.24	93.60%	95.99%	96.74%	92.86%	5	1	6.206	5.879	1.856



AP2 intensity rolls off as the AP2 BPMs fail.



Accumulator vertical emittance takes another stair step function up and down.



Ap2 BPMs start misbehaving around 13:00